

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte DAVID J. MITCHELL and PETER Y. KELLY

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Appeal No. 1997-1069  
Application No. 08/243,959<sup>1</sup>

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ON BRIEF

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Before WILLIAM F. SMITH, HANLON, and PAK, Administrative  
Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1 through 12, all of the claims pending in the above-identified application.

Claim 1 is representative of the subject matter on appeal and reads as follow:

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<sup>1</sup> Application for patent filed April 28, 1994.

Appeal No. 1997-1069  
Application No. 08/234,959

Appeal No. 1997-1069  
Application No. 08/234,959

1. A method for the grafting of a monomer onto a polyolefin in the presence of an organic peroxide, said polyolefin being a polyolefin that, when molten, undergoes cross-linking in the presence of the organic peroxide, said method comprising:

(a) admixing in an extruder an admixture of (i) said polyolefin, (ii) 25 to 6000 ppm, based on the weight of the polyolefin, of an organic peroxide coated onto a carrier polymer, the amount of organic peroxide coated onto said carrier polymer being at least 0.2% by weight of the carrier polymer, and (iii) up to 5%, by weight of the polyolefin, of a grafting monomer capable of being grafted onto the polyolefin in the presence of the organic peroxide;

(b) heating the admixture to a temperature above the melting point of both the polyolefin and the carrier polymer under admixing conditions to effect grafting of said grafting monomer onto the polyolefin, said carrier polymer undergoing chain scission in preference to cross-linking in the presence of the organic peroxide at said temperature; and

(c) extruding grafted polyolefin from the extruder.

In support of his rejection, the examiner relies on the following sole prior art reference:

Furrer et al. (Furrer)                      5,112,919                      May 12,  
1992

(Filed Oct. 30, 1989)

Claims 1 through 12 stand rejected under 35 U.S.C. § 103

Appeal No. 1997-1069  
Application No. 08/234,959

as unpatentable over the disclosure of Furrer.<sup>2</sup>

We reverse.

The claimed subject matter is directed to a process for grafting a monomer onto a polyolefin which is capable of undergoing cross-linking in a molten state in the presence of an organic peroxide. See claim 1. The process involves admixing the polyolefin, the monomer and a carrier polymer coated with the organic peroxide in an extruder, heating the resulting mixture at a temperature above the melting point of both the polyolefin and the carrier polymer and extruding the resultant grafted polyolefin from the extruder. *Id.* The carrier polymer is limited to only those polymers which can undergo "chain scission in preference to cross-linking in the presence of the organic peroxide at said [melting] temperature." *Id.* According to appellants (the specification, pages 7-9, example 1), the use of carrier polymers which undergo cross-linking in preference to chain scission in the presence of organic peroxides in the claimed

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<sup>2</sup> The examiner has withdrawn the rejection of claims 1 through 12 under 35 U.S.C. § 102(e) as anticipated by the disclosure of Furrer as set forth in the final Office action dated December 21, 1995 (Paper No. 9). See the Answer, page 2.

Appeal No. 1997-1069  
Application No. 08/234,959

process "results in a grafted product having a significantly increased level of gels and specks." The claimed process, which employs a carrier polymer undergoing chain scission in preference to cross-linking in the presence of an organic peroxide, is said to

Appeal No. 1997-1069  
Application No. 08/234,959

be less susceptible to gel and speck formation. See the Brief,  
page 2 and the specification, page 9, line 32 to page 10, line 30.

As evidence of obviousness of the claimed subject matter under 35 U.S.C. § 103, the examiner relies on the disclosure of Furrer. Appellants do not dispute that Furrer describes a polyolefin grafting process corresponding to the claimed process, except for the claimed carrier polymer. Compare the Answer, pages 3-6, with the Brief and Reply Brief in their entirety. As found by the examiner (the Answer, page 3), Furrer describes using a carrier polymer in its polyolefin grafting process. See, e.g., column 4, lines 20-40. Furrer teaches that the carrier polymer can be chosen from various high and low density polyethylene and polypropylenes, ethylene vinyl acetate copolymers, high and low density polyethylenes, linear low density polyethylenes, homopolymers of an alpha-olefin having 2 to 6 carbon atoms and copolymers of two alpha-olefins. See column 4, lines 43-48 and column 5, lines 1-2 and 16-20.

The examiner recognizes that Furrer does not state that

Appeal No. 1997-1069  
Application No. 08/234,959

its carrier polymer has the claimed functional characteristics, i.e., "undergoing chain scission in preference to cross-linking in the presence of the organic peroxide at said temperature." See the Answer, page 3. Referring to page 3 of the Office action dated May 24, 1995 (Paper No. 6) and page 4 of the specification, however, the examiner asserts that at least some of the carrier polymers listed in Furrer have the claimed characteristics. In other words, the examiner acknowledges that at least some evidence in the specification referred in the Office action dated May 24, 1995 evinces that at least some of the carrier polymers listed in Furrer do not possess the claimed functional characteristics. See the Answer, page 3, in conjunction with the specification, pages 7-14 and the Office action dated May 24, 1995, page 3. Moreover, the examiner does not rely on any specific example in Furrer, which necessarily employs a carrier polymer having the claimed functional characteristics. Nevertheless, the examiner takes the position that it would have been obvious to select those carrier polymers having the claimed functional characteristics from the carrier polymers listed in Furrer. See Answer, page 3.

The dispositive question is, therefore, whether it would have been obvious to employ the claimed carrier polymer in the polyolefin grafting process of Furrer. We answer this question in the negative.

As indicated *supra*, Furrer describes classes of polypropylenes, polyethylenes, copolymers and homopolymers as its carrier polymers. These classes of polymers embrace a huge number of polymer species. At least some of the polymer species included in Furrer are shown to have no claimed functional characteristics as indicated above. Nor does the examiner refer to any specific teaching in Furrer to show that a person having ordinary skill in the art would have recognized the importance of using a carrier polymer having the claimed functional characteristics in a polyolefin grafting process. Absent some recognition of the desirability of carrier polymers having the claimed functional characteristics, one of ordinary skill in the art would not have been led to select the claimed carrier polymers from those listed in Furrer. The motivation or suggestion simply cannot be derived from that which is unknown. *In re Spormann*, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1988) ("Obviousness



Appeal No. 1997-1069  
Application No. 08/234,959

cannot be predicated on what is unknown").

Thus, on this record, we agree with appellants that the examiner has not demonstrated that the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art in view of the Furrer reference. Accordingly, we reverse the examiner's decision rejecting all of the appealed claims under

35 U.S.C. § 103 over the Furrer reference.

The decision of the examiner is reversed.

REVERSED

WILLIAM F. SMITH	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
ADRIENE LEPIANE HANLON	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
CHUNG K. PAK	)	
Administrative Patent Judge	)	

CKP:sld

Appeal No. 1997-1069  
Application No. 08/234,959

Appeal No. 1997-1069  
Application No. 08/234,959

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